

Hiroo KANA¹*: **Distribution of *Epilobium angustifolium* in Japan**

Study on the distribution pattern of Japanese plants 1.

金井 弘夫*: ヤナギランの分布について

(日本植物の分布型に関する研究 1)

Epilobium angustifolium L. is widely distributed in the cold temperate and the subboreal regions of northern hemisphere. In Japan, the plant occurs in central Honshu and further northwards, on the waste land of mountainous region, and also at low altitude in the north. The westernmost habitat of the plant is Shimosadani national forest, Kamitakara-mura prov. Hida, and the southernmost one is Mt. Fuji, prov. Suruga.

When Haussknecht published his monograph of *Epilobium* in 1884, he described 14 forms under *E. angustifolium* based on the color and the size of flower, the leaf shape, the hairiness, etc. In Japan, the plant is fairly variable in the shape of leaf, and the hairiness of stem, leaf and calyx. The author noticed that the plant with leaves pubescent on the midrib of under surface is mostly found from Honshu, and the one having glabrous midrib of leaves is from Hokkaido. The former corresponds to var. *pubescens* Haussknecht (Fig. 1, A). Miquel has already noticed on this mat-

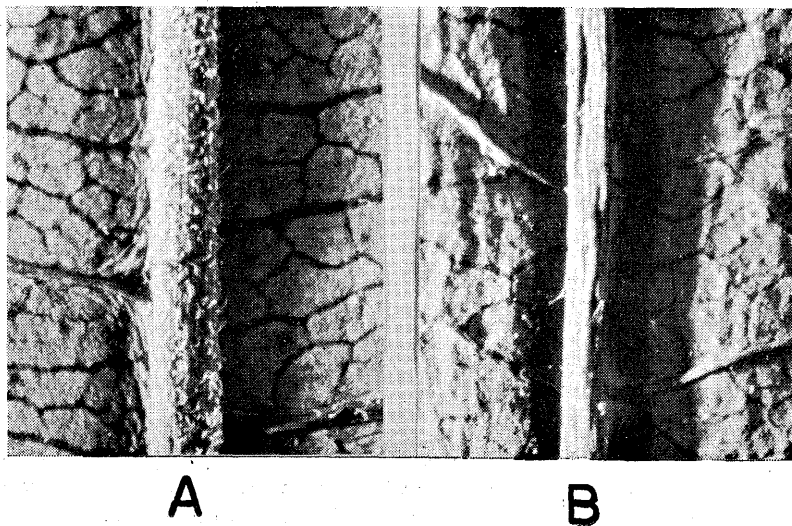


Fig. 1. Under surface of *Epilobium angustifolium*, showing pubescent (A) and glabrous (B) midrib.

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ter and mentioned on page 258 of his "Prolusio Florae Japonicae" that 'Specimina pauca praesto sunt quae ab europaeis differunt foliis subtus in costa pubero-albidis, adultis glabris,.....'. But as far as the author has examined, soft short hairs remain even on the midrib of adult leaf at least in the upper part of stem. Outside Japan, a pubescent form and a glabrous form seem to occur intermingled. Dr. T. Nakai noted a name var. *pubinerve* on the cover of Korean specimens in the Botanical Institute, Faculty of Science, University of Tokyo, but he did not publish the name. Dr. M. Kitagawa described in "Lineamenta Florae Manchuricae" p. 327, that a pubescent form is very common in Manchuria. Hegi stated in "Illustrierte Flora von Mittel-Europa" 5(2):815, that 'var. *pubescens* Hausskn.....Nicht selten, auch zwischen dem Typus'. As no one has distinctly recognized these two forms, the author thinks that a glabrous form is commonly distributed throughout the northern hemisphere and a pubescent form is mixed with it, and the difference between them is vague and no difference in distributional area is observed.

In Japan, however, the difference is clear, and the author has not observed an intermediate form between the pubescent form and the glabrous one. Also their distribution areas are considerably separated. The pubescent form is mostly found in Honshu and its area draws to eastside in northern Honshu. The northern limit of the pubescent form is Mt. Hayachine, prov. Rikuchu (Y. Ogura, Aug. 1, 1951, TI) as far as confirmed by specimen. The glabrous form is mostly found in Hokkaido and northwards and the area stretches southward into northern Honshu, occurring on Mt. Iwaki, prov. Mutsu (H. Sakurai, Aug. 1885, TNS; Jul. 24, 1880, TI), Mt. Hakkoda, Prov. Mutsu (S. Hattori, Jul. 30, 1926, TI, Hachinoe, prov. Mutsu (Faurie no. 1300, KYO), Mt. Hayachine, prov. Rikuchu (Muroi, Jul. 17, 1936, KYO), Mt. Iwate, prov. Rikuchu (M. Honda, Jul. 26, 1927, TI), and Nagabashiri windhole, prov. Ugo (Z. Tashiro, Aug. 8, 1933, TNS). The southernmost habitat is Mt. Chokai, prov. Ugo (Y. Ikuma, Aug. 24, 1912, TNS). Thus the two forms likely shift their areas in northern Honshu (Fig. 2). But the matter is not so simple, and the pubescent form is occasionally found in coastal regions of Hokkaido and Saghalien, and the adjacent islands, such as Mt. Hakodate, prov. Oshima (Y. Tomimoto, Jul. 24, 1931, Herb. H. Hara Harutori, prov. Kushiro (M. Nakamura, Jul. 18, 1886, SAP), Is. Shikotan (K. Kondo, Aug. 11, 1927, Herb. H. Hara), *ibid.* Inemoshiri—Yurui (K. Kondo, Sept. 6, 1929, Herb. H. Hara), Is. Kaiba (S. Komat., Aug. 12, 1915, TI), Tonnaikishi, Saghalien (S. Sawada, Jul. 20, 1930, TI), and Pirebo, Saghalien (K. Jinbo, Aug. 13, 1940, TNS). It has never appeared in the inland region of Hokkaido. The problem of distribu-

tion process must be included in this matter.

On the other hand, the shape of leaf is considerably variable. In general, broad leaves are found in a pubescent form prevailing in Honshu, and narrow ones are more often found in a glabrous form from Hokkaido and northward. But the correlation between the pubescent or glabrous midrib and the broad or narrow leaf is hardly observed by statistical treatment. The domains of two forms almost overlap

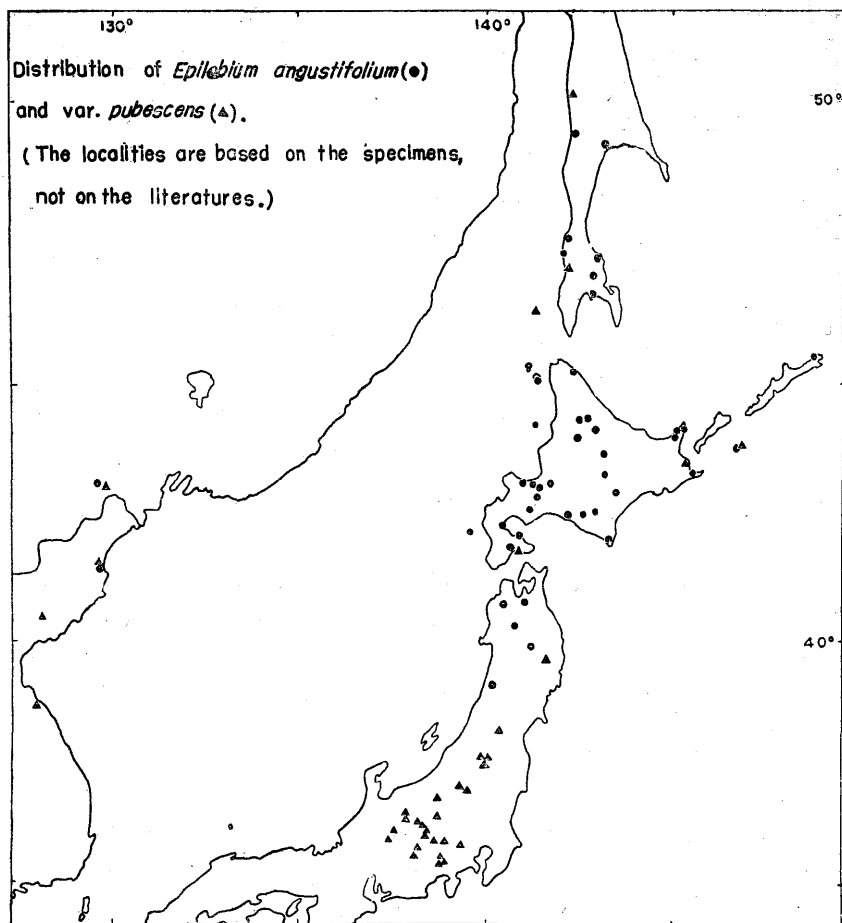


Fig. 2. Distribution area of *Epilobium angustifolium* in Japan and the adjacent regions.
Triangles—pubescent form. Circles—glabrous form.

one another. The difference is only found in smaller leaf (Fig. 3)

A specimen from Mt. Ontake peak Kengamine alt. ca. 3000 m, prov. Shinano (M. Mizushima, Aug. 3, 1953, TI) is an aberrant one. It includes three young plants without flower. Mizushima remarked on the label that the plant is introduced for the ornamental purpose, and he told me that the plant has no flowering period there though it blooms at low altitude of the same mountain. Their leaves are narrow and slender, being much smaller than those of the pubescent form as shown in the graph (Fig. 3 Crosses), and are scarcely pubescent on the midrib of under surface but will surely become glabrous when they mature. It is very interesting if it is caused by the transplantation from a low and comparatively mild conditioned habitat to a high and more severe conditioned place.

The specimens deposited in TI, TNS, KYO, SAP, and Herb. H. Hara were examined during this works.

The author wishes to express his cordial thanks to Dr. Hiroshi Hara for his kind guidance, and to Mr. Shunki Okuyama of National Science Museum and Dr. Misao Tatewaki of Hokkaido University who have kindly permitted him to examine the specimens in their herbaria.

Summary

Epilobium angustifolium is locally differentiated in Japan, the glabrous form (typical *E. angustifolium* L.) is distributed in northern Honshu, Hokkaido and northwards, and the pubescent form (var. *pubescens* Haussknecht) in Honshu. Their areas are in contact each other in northern Honshu, and do not intermingle. The pubescent form, however, occasionally appears in coastal regions of Hokkaido and Saghalien, and the adjacent islands.

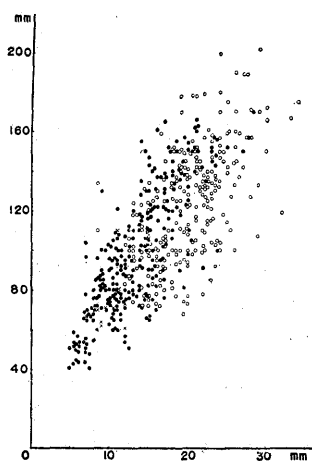


Fig. 3. Domain of leaf size of *Epilobium angustifolium*. The leaf length on the vertical axis, and the leaf width on the horizontal axis. Solid circles—glabrous form. Open circles—pubescent form. Crosses—Specimens form Mt. Ontake, prov. Shinano, introduced from low altitude to 3000 m height (M. Mizushima, Aug. 3, 1953, TI).

Three largest and widest leaves from the central part of the stem of each individual are taken for measurement. The measurement covered all over the specimens the author has examined.